

The Possible Evolutionary History of two Florida Skinks

STEVEN P. CHRISTMAN

TELFORD (1962) listed the known locality records for the endemic sand skink, *Neoseps reynoldsi* Stejneger. He reported 15 localities within Highlands, Polk and Lake counties as valid, and discounted the Alachua and Dade county records (Telford, 1959, 1962).

During the past 6 months five specimens of *Neoseps reynoldsi* have been taken in northern Marion County, Florida. The locality, near Lake Delancy represents a considerable northerly extension of the lizard's known range. The collection area is 37 miles north of the nearest previous locality, and increases the total north-south distribution to about 155 miles. The skinks were found in association with the red-tailed skink, *Eumeces egregius* (Baird), in sand-hill habitat, with yellow Lakewood sand.

This new locality may well represent the farthest north *Neoseps* should be expected. It was probably at or very near the shoreline of the "Suwannee Straits" which separated the Florida islands from the mainland in interglacial times (Neill, 1957). Telford (1959) suggested that *Neoseps* may have evolved on the island outlined by the Wicomico Terrace in the early Pleistocene. For his shorelines and dates, Telford used Cooke (1945) who depicted the Wicomico Terrace as a large island extending from Alachua County south to Highlands County. MacNeill (1950) sees the Wicomico Terrace as several islands, including a large one from Lake County south to Highlands (Lake Wales Ridge) and a small one at the Lake Delancy region in northern Marion County. The known locality records of *Neoseps* fall within the large island and the Lake Delancy area here reported.

Since Telford's paper, Alt and Brooks (1964) give evidence that the age of the Wicomico may be much greater than Pleistocene; probably Pliocene. If this were the case, it would have allowed a longer period of isolation for *Neoseps*: when the waters receded at the end of the Sangamon interglacial period, the lizard was still isolated and prevented from dispersal because of the lack of suitable habitat. Even in more recent times there appears to have been no dispersal for this reason.

The presence of *Neoseps* in the Lake Delancy area as well as the Lake Wales Ridge, the area in between having been submerged during the Sangamon, indicates the need for a slight revision of Telford's hypothesis. *Neoseps* must have been well on its evolutionary path of development *before* the rise of sea level which separated the Lake Wales Ridge from the Lake Delancy area. It is thus indicated that *Neoseps* developed before the Sangamon interglacial period, and was subsequently isolated and restricted to at least two of the land masses that remained above water during that final rise in sea level. The fact that the specimens collected at the Lake Delancy area are virtually identical with Lake Wales Ridge material indicates that the specialized adaptations of *Neoseps* were present before the separation of these two populations.

Examination of MacNeill's (1950) map of the Wicomico Terrace, and comparison with soil and vegetation maps shows that several other small areas may still support *Neoseps* populations. The outlook for this Florida endemic thus seems a little more optimistic than that feared by Telford (1969).

I have collected what is apparently another Lake Wales Ridge endemic at this same Lake Delancy area. Skinks which fit Mount's (1965) description of *Eumeces egregius lividus* make up about 25 per cent of this species collected around Lake Delancy. Unfortunately I have been unable to get a live specimen to Dr. Mount for his opinion, but Dr. Telford, who saw much of Mount's original material, agrees that the specimens in question fall into the range of color variation of the blue-tailed subspecies.

Eumeces egregius is much less restricted in habitat requirements than is *Neoseps*, and doubtless mixing of *onocrepis* with *lividus* in the small Lake Delancy area is occurring. But the fact that *lividus*-like lizards are present indicates a similar evolutionary background for the two skinks. Everything that has been postulated for the history of *Neoseps* may well apply to *Eumeces egregius lividus*.

Shortly after death, one of the *Neoseps* was examined under the dissecting microscope. Packs of sand were evident around the nostrils. Pough (1969) notes this situation in the sand-adapted lizard *Uma notata*, and suggests its significance in preventing inhalation of single grains of sand.

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Department of Natural Sciences, Florida State Museum, Gainesville, Florida 32601.

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